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Method and Apparatus for Measuring Thickness of Thin Film and Manufacturing Method and Device Using Same

ABSTRACT OF THE DISCLOSURE

A method for high-precision measurement of film thickness and the distribution of film thickness of a transparent film is disclosed. The method is performed during a CMP process, without being affected by the film thickness distribution among the LSI regions or on the semiconductor wafer surface. The film thickness is measured by specifying relatively level measurement regions, according to a characteristic quantity of the spectral waveform of the reflected light from the transparent film, such as the reflection intensity, frequency spectrum intensity. This permits highly accurate control of film thickness. The leveling process in CMP processing can be optimized on the basis of the film thickness distribution.